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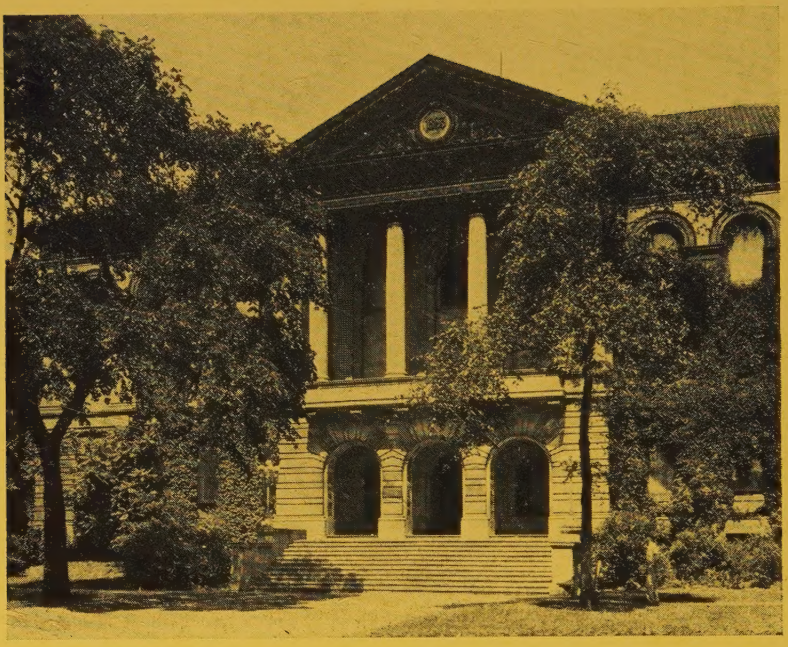

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WOODRUFF

The Waukegan Moorland.

The Disappearing Moorland

Robert Kral

For many miles radiating from Chicago new homes, new stores, even small towns are springing up like mushrooms. A city is spreading a growth of concrete and brick over a land which not so very long ago was wild and free. The sandpiper's faint, wind-borne song was once heard where busy streets now hum with traffic, and blackbirds swayed on wind-tossed cattail stalks where concrete sidewalks run past a maze of street lights and crowded homes.

The land around Chicago was a vast, lonesome expanse. Extending along the lake shore were miles of sandy marshlands, once a part of the old glacial lake, Lake Chicago. Tall fragrant meadow grass high as a wagon wheel billowed and undulated in the lake breezes, and on the sand risings and ridges wild strawberries bloomed and bore delicious fruit. Later in the season clumps of cacti seeming out of place in a northern world opened great, yellow, poppy-like flowers to the sun. Rushes, blue flags, low growing willows and feathery tamaracks braved the softer, marshier ground. This wilderness extended all along the shore and for miles inland, before the marshes gave way to higher ground and friendly, sheltering groves of oak. In the spring and again in the fall, birds by the thousands found temporary shelter among the swampy rush beds, and their cries rose in the morning mists into an expansive sky. Sometimes the howling of a migrating wolf pack could be heard across the barren moor. In all the growing seasons the meadows and swamps were clothed in ever-changing garbs of beauty as countless thousands of wild flowers, a never-ending carpet of brilliance, charged the air with fragrance.

A small settlement, our Chicago, expanded with the vigor of America. In time it spread its great growth along the lake and began to earn its reputation as a leading industrial city. Highways and railroads came, factories began their ugly existence, and wild life shrank from a city's poisonous touch. Swamps drained away into sewers, prairies were broken; the wild birds robbed of their homes came less and less frequently with the passing years. Wild flowers, which in uncountable numbers had populated the land, became scarcer and rarer, giving way to the sickle and plow, and to thoughtless people with little foresight. With the growing city's progress many of the strange and beautiful things about our land disappeared entirely, living now only in the memories and stories of a few who saw that dying glory and could not forget.

Some can remember when fringed gentians bloomed in profusion around Chicago. The flowers are now so rare as to be almost extinct. Why did they go? A prairie plant like the fringed gentian, for all its

fragile appearance, can withstand all the moods of nature in the grasslands no matter how severe. But its fatal failings are its beauty and the fact that it is an annual. In addition to the draining of swamps and the subdivision and building up of the land, the gentians suffered from being picked in such great numbers that in many places they bore no seed at all and therefore died out completely. Commercial florists also did their part, and so thoroughly that now the places where they can be found may be counted on the fingers of one hand. Gentians are to be discovered only in the most inaccessible places where little bits of true prairie still exist. But a few are still with us, blossoming in the fall when the air is clear and sharp; their fragile, intensely blue flowers dotting the meadows with bits of sky when other less hardy plants, nipped by the frosts and north winds, are getting ready for a winter's rest. The gentian is a moisture lover, picking dark, peaty soil for anchorage. It is found in the company of the tall meadow grasses and other plants that love an open sky. It is a tall plant for one so fragile, growing to about a foot in height, and its flowers with four blue petals fringed at the edges closely overlap at the base and spread out at the top. Each plant may bear from one to twenty or more flowers, so that a number of them together make an unforgettable sight.

Among the other wild flowers of Old America, members of a strange and brilliant family—wild orchids—contributed their fantastic floral patterns, many kinds as beautiful in form and color as their famed relatives in the tropics. Our native orchids grace hidden corners of deep swamps and forests where the marsh hawks and blue herons live, their weird flowers dwelling in the shadows of the tall sedges and swamp trees. No other plant family has so many eccentricities and so strange a brotherhood, and none are as elusive and subtle in their chosen haunts. Even the busy people of Chicago's early days were curious about these aloof flowers.

Rare in the first place, orchids are now found in only a few scattered locations along the ancient lake shore, choosing the deepest swamps and tamarack bogs for their homes where even the most ambitious farmers admit defeat. In places like these they make their last stand, where natural barriers form nearly impassable obstructions. To gain access to one bog I have visited, one must travel through a mile of dense spruce woods, over fallen logs and through brambles and brakes, over a treacherous lowland of considerable extent and a large moat of water before the goal is reached. Of course only the orchids' best friends would make such an effort, and the initiation into their world, severe as it may sometimes be, is forgotten when once one gets there.

Here are a few pointers in orchid tracing. You will find that plants seem to have associations and clubs as human beings do. There are, we know, groups of plants that like alkaline soil, some that flourish

in sandy loam, and some that prefer neutral woodsy soil. The orchids are, as a whole, members of the strictly acid soil convention.

Sometime when you are taking a hike in the country and you run across a considerable area of brush overgrown with ferns or pine, look around for traces of orchids. Wild lilies of the valley are sure indicators of lady's slippers and others of their family; so are such plants as blueberries, bunchberry, wintergreen, Indian pipe, heaths, or in swampier regions sphagnum moss and ferns, such as the crested and ostrich, wild cranberries, and huckleberries. All these are fellow acid soil alumni. Pines and tamaracks provide the proper shelter and soil for these unique flowers.

In such places yellow cypripediums are found with their tall graceful stems surmounted by gold and red slippers. Pink moccasin flowers take to swampy sphagnum moss and dot the bog hummocks with red-viened rose lanterns. The Dunes State Park harbors the small white lady's slipper in abundance. This, like *Cypripedium parviflorum,* is a miniature orchid, ivory white with soft, purple mottlings on the lip and yellow-green surrounding petals. These three, yellow, pink and white, are June flowers, giving way in July and August to other even more showy types, such as *Habenaria ciliaris,* which has stalks of orange-fringed flowers, and to other species, lavender or white. These are only a few of our native orchids. There are considerably over a hundred species in the country with twenty-three listed from our region. Certain kinds are very small and blend so well with their environment that a person can almost step on them without noticing. The rarity of the orchid class doubles the excitement of finding one in its own haunts, and the sense of satisfaction that follows is a source of real enjoyment in the life of the plant hunter. Then, too, where there are adder's mouths and moccasin flowers, other rare plants and birds live. Entering the swamplands is like going back a hundred years in time, for within are found conditions that have not been changed—a world of yesterday.

Gentians and orchids—true representatives of the old Chicago region—can trace their ancestry back to the days when this fragrant moorland was known only to the Indians and the flocks of wild birds which sought it as a home.

The preceding paper by Robert Kral, a botany student at Oak Park and River Forest Township High School, won second place in the Cowles Botanical Society Awards for 1943. The Society is again sponsoring awards for papers demonstrating botanical observations and research by high school students in 1944.

In Search of a Reed Bunting

Margaret Morse Nice

Illustrated by Joost ter Pelkwyk

The Eighth International Ornithological Congress was a very great occasion—ornithologists from twenty-five countries gathering in ancient and lovely Oxford to become friends, to protect birds and to tell of their discoveries, generously and splendidly entertained by the English. As Dr. Erwin Stresemann, President of the Congress, wrote me afterwards, "It was too beautiful to be true."

On the way home from the never-to-be-forgotten day with the seabirds off the coast of Wales, when, as guests of the British Admiralty, we had sailed in two destroyers to Skokholm, Skomer and Grassholm, we had been entertained at tea at Stanway House by the Earle and Countess of Wemys and the Honorable Guy Charteris. Later my sister and I spent a few days not far from there, to see the plays given at Malvern, and I wrote to Mr. Charteris inquiring about the best place for birds in that vicinity.

A long letter came in answer:

"For concentration of species I know no better place in England than the Mythe just outside Tewksbury. It is beside the Severn above where it is joined by the Avon." Then he listed twenty-seven species that I might find in the following habitats: osier beds, ponds, the river, rough embankments, hedge rows and coppices, rough pastures and water meadows.

One that I hoped most to see was the reed bunting. Years before in Ohio it had been an exciting experience to read Eliot Howard's *Territory in Bird Life* and *Introduction to the Study of Bird Behavior*. In each of these the reed bunting plays the major role. He can well be considered the prototype of territory-holders. It was startling to read page after page on behavior of *Emberiza schoeniclus* that might almost as well have been written of the song sparrow. One of the high lights of the Congress had been visiting with Mr. Howard at the stately dinner given for the Overseas Guests at Christ Church Hall. But neither in my eager searches for birds over Europe in 1932, nor now two years later in Germany and Scandinavia, had I yet seen the reed bunting.

In the coppices by the Severn I met many old friends. A wood pigeon gave his deep coo that has the rhythm of our barred owl's hoot; a plump, bob-tailed wren sang his pretty song, and unbelievably bright blue and yellow blue tits hurried about through the trees. A handsome red-backed shrike was accompanied by its full grown young.

The visitor to a new country blesses those birds that are distinctive in plumage or voice. One of these is the ever-present chaffinch with his pinkish breast and slate-blue crown and his loud song with the funny quirk at the end. Another is the black-cap, so different from most of the Old World warblers that look so exasperatingly alike. The yellow-hammer is one of my special favorites; a large bunting with yellow throat and head markings and whose song is mentioned in one of Beatrix Potter's books—"Little bit o' bread and no *cheese!*"

Soon I came upon a little pond, well covered with water lily leaves and spatter dock. Running about on the pads were what the English call moorhens and we call gallinules; their bird is *Gallinula chloropus;* ours is the Florida gallinule, *Gallinula chloropus cachinnans.* There were adults with their bright red frontal shields, and grown young without these decorations, as well as one downy baby. I wished

Yellow-hammer

Kingfisher

our birds were as abundant and friendly as their English relatives. A family of European coots with three large young looked very much like our American coots, but here the species is different—*Fulica atra* in one case, *Fulica americana* in the other. For the first time I saw a tufted duck, a striking black and white fellow, looking much like his relative the scaup except for the tuft on the back of his head. A dabchick appeared and disappeared; with its chestnut cheeks it is more gaily colored than our pied-billed grebe. Loveliest of all was the exquisite little kingfisher—a flashing gem of ruby and cobalt and emerald.

Sedge warblers and marsh warblers were on my list as occurring in osier beds; these are little brownish birds, best distinguished by their songs, although some help is given by slightly different head markings.

I was very pleased to meet first what I believed to be *Acrocephalus schoenobaenus* and later *Acrocephalus palustris;* each matched well their pictures in my little German handbook. A pair of mute swans and their two large but still down-covered young were the last birds recorded at this beguiling spot.

In alternate rain and sunshine I proceeded on my way, searching for a sheltering tree, but although England has no poison ivy, it has instead a superabundance of thistles and terrible nettles, so it was long before my search was rewarded. Barn swallows were nesting in a forlorn out-building, and did not welcome my intrusion.

Mr. Charteris had listed curlews and corn-crakes as likely to be seen in rough pastures and water meadows, so I made my way towards land that seemed to answer this description. By the wall I found the jolly little stonechats with their black throats and reddish breasts and also whinchats with their buffy breasts. Many of the English names for birds have the charm of old folk-names that our more artificial terminology lacks. In the pasture was a flock of forty-three spectacular lapwings, but I was mistaken in the hope of getting nearer them on foot than from trains, for they were disappointingly shy. A large immature black-backed gull stood motionless in the middle of the field. Two great birds alighted and for an instant I thought they were storks; they proved to be grey herons, very like our great blues. The only hawk I saw on the trip was a kestrel; it has been suggested that our badly miscalled sparrow hawk be renamed the American kestrel.

A family of partridges (we call them Hungarian), both parents and a dozen young about one-fourth grown, flew up and settled in nettles in the adjoining field. I took refuge under a linden and stood for some time waiting for the rain to pass. Presently I noted the young family starting out to feed, followed by their mother. I began to walk slowly up the lane towards them, a hedge between us. Suddenly mother gave a cry and every chick froze. She stood erect and watchful and then walked towards the chicks with little warning notes. I advanced and she too crouched in the stubble. The whole family was nearly invisible; once I lost sight of them and had difficulty in locating them again. As I walked along the lane above them, all lay motionless watching me; I started to climb the fence; with a whir they sprang into the air and were gone.

Along a rough embankment I met a pair of lively yellow wagtails and two sober-clad tree pipits. Through the rain I explored a hilly pasture in which many thorn trees grew; here to my delight were a pair of wheatears, one black and white and buffy, his mate brown instead of black, both amusing with their bobbings and bowings and tail-flirtings.

In Tewkesbury I visited the beautiful early Norman Abbey with its great tower, its 14th Century stained glass and its graceful windows of the Decorated period. I waited for the bus at the Hop-Pole Inn, immensely proud of itself for having been mentioned in "Pickwick Papers", but I did not patronize the Ancient Grudge Tea Room. It had been a notable day with splendid cloud effects and many birds; I had found fourteen species on Mr. Charteris' list and twenty-six besides, a very good record for four hours in mid-day in late July. But I had not seen corn-crakes nor curlews nor reed buntings!

My sister and I returned to London where we spent much of our time in libraries. One warm morning I grew weary of reading and writing and decided to make another try for the reed bunting. Mr. E. M. Nicholson, author of the stimulating book *How Birds Live,* had suggested Tring, famed for Lord Rothschild's great collection of bird skins, as a hopeful spot; so out I trundled on the bus past Featherbed Lane, Raven's Lane, and Roast Cow Hamlet, as well as eating places called Spotted Bull, Hit or Miss, and Hog in Pound. First I walked along a foot path through fields and under great trees, seeing wrens, pretty robins, plain hedge sparrows and plenty of chaffinches. Thrushes, blackbirds, swifts, swallows, martins, a jay, rooks and starlings were all jotted down in my note-book, while on every hand house sparrows abounded. I was happy to hear skylarks singing.

Due to the great drought the reservoirs were very low. Here there were multitudes of mallards, all females or males in eclipse, *sunning* themselves on the banks on this baking day! No great crested grebes were to be seen, but there were a few moorhens and a flock of timid lapwings, while a common sandpiper teetered along by the water's edge.

It was hard to discover a bit of shade not pre-empted by thistles and nettles, but at length I succeeded. A cunning reed warbler, or so I believed, scolded and protested, and no wonder, for it was feeding young out of the nest. Greenfinches were much in evidence and sang a pretty and varied song.

As I was eating my lunch, all at once I thought I had discovered my reed bunting, for there was a bird the right size and, it seemed to me, the right colored back, proclaiming territory with an insect-like song. Alas, this was only the corn bunting, whose song, and indeed existence, I had temporarily forgotten. It is curious that such a plain brown striped bird with such a poor excuse of a song should be able to gather unto himself from two to seven wives! The studies of Col. and Mrs. B. H. Ryves have shown him to be an inveterate polygamist. Yet, even after meeting this famous gentleman, I felt discouraged to think I had spent a whole day, three shillings and six-pence, and a vast amount of energy in the piping heat, and still had not found a reed bunting.

Suddenly I heard a loud song from a bush. Here at last was my reed bunting, very near me, unafraid, singing and preening. A handsome fellow, larger than the song sparrow, looking something like a Harris's sparrow with his black hood and throat. I had travelled

Reed Bunting

thousands of miles to see this bird, immortalized by Eliot Howard, the hero of two of his books. In some respects it would be an easier bird to study than the song sparrow, because his mate lacks the black headgear, and the first winter plumages differ somewhat from those of the adult. Nevertheless I was thankful that my special territory-holder was *Melospiza melodia* with his pleasant, original, and often beautiful songs.

Test Your Nature Lore

1. Which two of these fruits are *not* berries in the botanical sense?

(a) blueberries
(b) currants
(c) raspberries
(d) grapes
(e) gooseberries
(f) strawberries
(g) tomatoes

2. The corolla of a flower is composed of sepals. True, false?

3. Which of these words is inappropriate in this general grouping?
carnelian, chalcedony, coreopsis, chrysoprase, cairngorm

4. All of the following are names in which class of natural history materials—botanical, conchological, mineralogical?
heliotrope, jacinth, hyacinth citrine

5. After pairing names for similar animals (a number with a letter), which *two* are left over?

(1) coney (2) manatee (3) ground squirrel (4) lemming (5) ground hog (6) dingo
(a) coyote (b) marmot (c) lemur (d) lapin (e) prairie dog (f) porpoise

Answers on page 14.

Hunting Birds with a Microphone[1]

ARTHUR A. ALLEN[2]

It is a far cry from bombs to birds—from the crash of war to the trills of a thrush—and perhaps my subject seems inappropriate when our thoughts are on the blasting of cities and the torpedoing of ships at sea. And yet, even on this very evening, when perhaps bombs are bursting in London, Liverpool and Berlin, the nightingale is singing in Surrey; and tomorrow, the skylark will rise over Coventry as though nothing had happened and as though all that is really worth while is blue sky and green fields and a nest among the grasses.

In this country, as the wheels of industry whir faster and faster, the robins carol from the housetops, the bobolinks pipe from the fields, and the hermit thrushes sound their organ-like notes from the forests, as though man and his works were insignificant in a universe that has seen the rise and fall of Caesars and Napoleons and the disappearance of whole civilizations without the change of a single note in the song of a bird. For the song of a bird epitomizes a stage in the evolution of the universe, compared with which man and his deeds and his jar-

[1]Reprinted from *Feathers,* vol. 3, no. 6 & 7, 1941 (Schenectady Bird Club).
[2]Professor of Ornithology, Cornell University.

gon of languages and dialects are but fleeting and ephemeral things. And when the war is over and many other wars have come and gone, the robin will continue to sing as he sang when Columbus discovered America, and as he was singing when the first apeman hurled a rock at his neighbor.

So perhaps we can justify ourselves in pausing at our labors occasionally, to listen to these outpourings of Nature that are as much a part of this great land of ours as are the mountains and the great plains and the forests, the fountain-head for all agriculture and industry.

We at Cornell, of the Laboratory of Ornithology, have undertaken not only to familiarize ourselves with the songs and calls of our native birds but, through the agencies of modern invention, to secure permanent records of their voices comparable to the books in a library or the paintings in a gallery—records that will help you and your friends to know the sounds of Nature and to derive real enjoyment from your ears when you are out-of-doors. At the same time these records afford us an opportunity for making an accurate laboratory analysis of the songs of the various species and help us to understand the mechanisms of sound production and sound reception.

We are too prone to interpret what we see and what we hear in nature in terms of our own eyes and ears, not realizing that other creatures see and hear quite differently from ourselves. Does it ever occur to you, for example, that the starling fighting the other birds at your feeding station is oblivious to your imprecations and does not take alarm until you clap your hands or make some sudden motion, because he does not hear the low frequencies of ordinary human voice? Has it occurred to you that the sort of thrill you feel when you hear the voice of a friend in a strange crowd is felt a hundred-fold by a bird because its range of hearing corresponds roughly to the sounds which its kind produces, and it is probably totally oblivious to the great volume of other sounds that are outside its narrow hearing range?

The main objective of our studies and our expeditions with the sound truck are to secure as complete a record as possible of the voices of our native birds and to transcribe them to phonograph records, by which they become available to any who wish to familiarize themselves with the songs of birds. These records make a helpful shortcut, an open sesame, to the long, difficult task of learning the whole infinitely varied and minutely differentiated range of bird music.

I believe you will be interested in our method of recording. Imagine, if you will, a scarlet tanager sitting on the top-most bough of a hemlock near to a woodland road accessible to our sound truck. He was singing from this same tree when we passed yesterday morning, and this indicates to us that he is no mere transient on his way north but that he has selected this corner of the woods as his nesting terri-

tory, where he hopes to find a mate and raise a family. Migrating or wandering birds seldom come back day after day to the same perch from which to sing, but birds that have selected their territories regularly do so, not only on succeeding days but many times during each day, and, when frightened from their song perch, soon return. So, when we stop the truck and get out the "electric ear," which is a three-foot parabola with a microphone hung at the focal point, we are not very greatly disappointed if the tanager takes alarm at our approach, for we know he will soon be back. It takes a few minutes to reel off the cable, connect the amplifier, and warm up the tubes; by this time the tanager is singing from another perch a hundred yards away. We have our choice of reeling off more cable, sending an accomplice to disturb the bird on its new song perch and induce it to return, or just waiting for it to come back. In any case, as soon as we can get the parabola on its tripod set up within fifty or a hundred feet of the singing bird, we aim it much as one aims a gun, and this has the effect of bringing the bird fifteen times as close and shutting out some of the extraneous sounds. The tanager starts to sing and the sound waves start a tremor in the microphone, transforming them into electrical vibrations which can be greatly amplified in the truck. Indeed, the infinitesimal power of the weak sound waves, now transformed and amplified, can cause a galvanometer to turn slightly, even when a tiny mirror is fastened to its wires. As the mirror turns back and forth, a beam of light shining upon it through a slit a thousandth of an inch wide is flashed to the film which is running from one magazine to another, and the tanager's song is recorded as a photographic image on the film. The evanescent bird song then becomes an actual specimen capable of being stored in a museum, brought out at will and examined and compared with other songs, just as one studies herbarium sheets, or bird skins, or rock specimens; capable of being measured and described with mathematical accuracy like any other scientific formula; capable of being duplicated and passed from one person to another with no loss of truth or precision. In other words, the bird's song, in addition to being a charming expression of nature, inspiring somewhat vague anthropomorphic interpretations, now becomes, also, a tangible, recorded fact—a museum specimen to be described and preserved for future generations as readily as the birds themselves.

Every morning during May and June, the active song season, finds us in the field at dawn with the sound truck, hoping to add new songs to our collection. We start at dawn because then there is less wind and less human activity with its resultant competitive noises. The murmuring leaves and the babbling brooks and the iron-shod milkman are all our enemies, as are motor cars and tractors and, yes, worst of all, the droning airplanes.

Through the generosity of our benefactor, Albert R. Brand, who started the work in bird song recording, we have been able, in past years, to extend our activities from Maine to Florida and to the Pacific coast, and eventually we hope to have as representative a collection of bird songs in the Cornell Museum as we have of the birds themselves.

Test Your Nature Lore

Answers to questions on page 10.

1. All except raspberries and strawberries are true berries or "drupes"—fruits having a juicy pulp and containing many seeds.
2. False. Patals are grouped around the fructifying parts to form a *corolla*, while sepals make up the *calyx*.
3. *Coreopsis* is the name of a flower. All the other names apply to varieties of quartz.
4. *All* are names of gem minerals, though several also are flower names. *Heliotrope* is a bloodstone, *citrine* (or false topaz) is yellow crystalline quartz, and *hyacinth* and *jacinth* may be either garnet or zircon of yellow or brownish tones respectively.
5. Pairs: 1 d, 2 f, 3 e, 5 b, and 6 a. Thus, (4) lemming, a water rat, and (c) lemur, a monkey, are left over.

Underwood and Underwood

Henry Samuel Henschen

1873 - 1943

Our fellow member, Henry S. Henschen, died at his home in Evanston, December 27, 1943, at the age of seventy years, leaving a record of devotion to public service.

Mr. Henschen was elected a trustee of the Chicago Academy of Sciences in 1910, and in the same year became Treasurer. He served in this capacity until 1921. Meantime, in 1912, he was elected a Life Member. In 1940 he again assumed the duties of Treasurer and served until 1943.

He was born in Brooklyn, New York, July 29, 1873, and educated in the public schools, in the Chicago College of Law, and in Lake Forest University, where he received the degree LL.B. in 1896. He then entered the banking business and was cashier of the State Bank of Chicago for twelve years. Later he was president of the Congress Trust and Savings Bank of Chicago (1926-1930) and of the Chicago Bank of Commerce (1930-32).

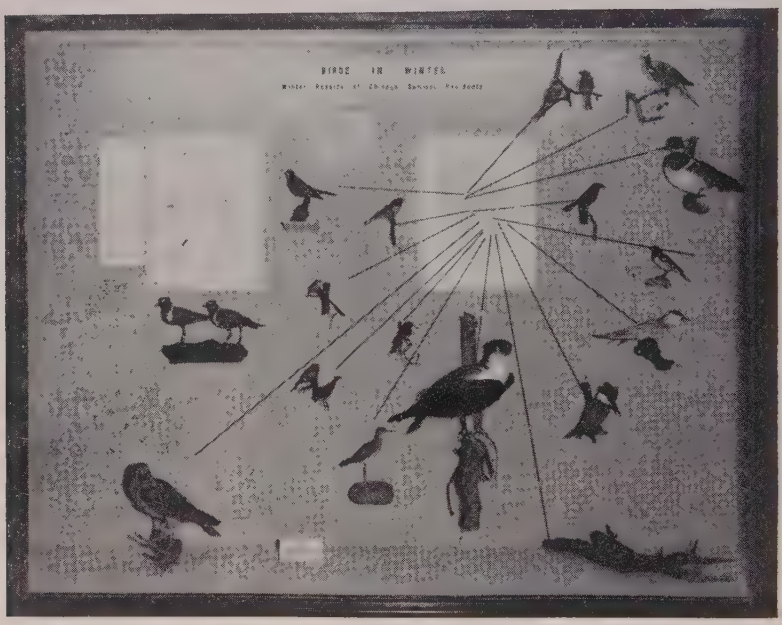
Decorated by the Swedish government, he became a Knight of the Royal Order of Vasa and also Knight of the Royal Order of North Star. For several years he was acting Swedish Consul in Chicago. In 1912 he published his "Annals of the Swedes in Delaware." The book was re-published in 1938.

His affiliations included a directorship in the Methodist Book Concern, membership in the First Methodist Church of Evanston, and a governing membership in the Art Institute of Chicago. He also was a member of the Union League Club.

A lawyer, scholar, patron of the arts, author, churchman, banker and civic-minded citizen, he was, moreover, a gracious gentleman, esteemed by his friends, including all his associates in the Academy. Those who were connected with him in his work for the public good were impressed by his loyalty, progressive viewpoint, and his unimpeachable honesty.

Lewis C. Walker
Eugene H. Garnett

Museum Activities



Bird Exhibits in Lobby

Seasonal exhibits on birds of the Chicago Region have been on display in the museum lobby since the first of the year. An exhibit in the large north case answered the questions: "Where have our summer residents been spending the winter", "How did they get there?" (migration routes), and "When may we expect them back?"

From January into April the south and east cases were devoted to winter birds, labels keyed by color designating year-round residents, visitors from the north which are customarily forced into our area by cold and food shortages, and occasional individuals of regularly migrating species. These winter birds were grouped according to whether or not they may become feeding station customers and, in the latter case, what diets most appeal to the various types of bird—insect-, seed-, and fruit-eaters-and the best ways of preparing and serving food for them. Charts, books, and leaflets displayed in table cases furnished further information on points suggested by the large displays.

Toward the end of April, a display of warblers was substituted for the exhibits of winter birds. Among our most charming spring visitors—in appearance, voice, and actions—the members of the warbler family, because of their elusive habits, similar size and shape, and repetitive color schemes, are probably the least well known of any category of local birds. Since their transiency affords the bird student little opportunity to become sure of identifications, this exhibit is set up for the entire period of warbler migrations in order to help those who wish to study closely and at leisure this interesting family of birds.

New Sound Equipment

The Academy has purchased a used DeVry sound projector for motion pictures from the fund contributed last year for the purpose of installing an amplification system.

The present equipment includes an amplifier, speaker, and phonograph turntable. A microphone will be purchased as soon as possible. The addition of a sound movie projector makes possible the showing of the best modern educational films for both children's and adults' programs.

A generous gift from Francis R. Dickinson, a Trustee, provided rental fees for the sound films used in this spring's Young People's Programs and the phonograph turn-table.

Nature Hobbies Exhibit Planned for Summer

An exhibit summarizing the nature activities of the various societies associated with the Academy is planned as the lobby display for this summer. Its purpose is to point out the opportunities for pursuing nature hobbies in the Chicago Region and for congenial companionship with others who share such avocational interests.

Materials—specimens, equipment, publications, and the like—are being assembled with the assistance of representatives of each society. Tentative headings for exhibits are: *Ornithology*—Field Observation and Window-watching (Illinois Audubon Society), Bird-banding (Wm. I. Lyon Bird-banding Council); *Geology*—Minerals, Rocks, Fossils (Marquette Geologists Association); *Microscopy*—collecting equipment, history of the microscope, photomicrographs (State Microscopical Society of Illinois); *Entomology*—equipment, specimens (Chicago Entomological Society); *Herpetology* (Amateur Herpetologists' Club); and *Botany*—herbaria, study projects (Cowles Botanical Society).

Suggestions for this and possible future Nature Hobby displays will be most welcome.

Saturday Morning Programs for Young People

The second spring series of Saturday Morning Programs for Young People, presented in the Academy auditorium at 10 o'clock on Saturday mornings from April 1 through May 6, was very well attended. Young people from the fourth grade in school upwards were invited to attend these free nature movies. Adults were welcome, with the understanding that, in case of overflow crowds, the children were entitled to first consideration.

Each program was built around a natural history or geographic theme and consisted of both educational and recreational films and an animated cartoon. Most of the films were in color with sound.

Apr. 1. Theme: The Other Americas. Titles: *South of the Border with Walt Disney* and *The Grain that Built a Hemisphere* (Disney cartoon).

Apr. 8. Themes: Birds—Inter-American Citizens; Natural Protection. Titles: *High Over the Border*, *How Nature Protects Animals*, and *Defense Against Invasion* (Disney cartoon on vaccination).

Apr. 15. Theme: Man's Relation to his Natural Environment. Titles: *Everyday Life of the Navajo Indians* and *Bird Scouts* (cartoon).

Apr. 22. Theme: Believe-it-or-nots from the Plant World. Titles: *Plant Traps*, *Seed Dispersal*, *Wild Flowers*, and *Springtime Serenade* (cartoon).

Apr. 29. Theme: Earning a Living with the Aid of Natural Resources. Titles: *Story of a Navajo Rug*, *The Little Indian Weaver*, and *Mollie Moo-Cow and the Indians* (cartoon).

May 6. Theme: Insects—Specialists in Community Living. Titles: *Insect Clowns* and *Queen of the Underworld*, *Winged Scourge* (Disney cartoon on the malarial mosquito), *Night Life of the Bugs* (Oswald the Rabbit cartoon).

At the close of the motion picture programs, young people and adults interested in nature study in the field joined the Audubon Society's Nature Walks through Lincoln Park.

Nature Walks Sponsored by Illinois Audubon Society

Lincoln Park: Bird Walks through Lincoln Park were again conducted this spring by Miss Doris Plapp under the auspices of the Illinois Audubon Society. The group met this year at 11 o'clock at the Academy, each Saturday morning starting April 1. Those who wished to bring their lunches ate, picnic style, in the park during the latter portion of the walk.

The field program closed on May 13, height of the warbler migration season, with an all-morning Warbler Walk. On this morning the study group assembled for breakfast at 6:00 A. M.

Thatcher Woods: Nature Walks in the vicinity of River Forest are again being conducted by Miss Ester Craigmile and Mrs. Theron Wasson, with the sponsorship of the Audubon Society. Every Saturday, beginning March 4 and continuing through May 27, adults and young people interested in the study of birds, flowering plants, and trees meet at the Trailside Museum, Chicago and Thatcher Avenues, River Forest, at 10:00 A. M. The walks last for an hour and a half (until 11:30).

Readers of *The Chicago Naturalist* who do not save back numbers can help the Academy by returning copies of Volume 6, Number 2, for June, 1943. A smaller than usual number of this issue was printed and the reserve is likely to be inadequate for meeting special requests.

Bird-banding Conference

The Fourth Annual Chicagoland Bird-banding Conference was held at the Academy on Saturday, April 22, under the joint sponsorship of the Wm. I. Lyon Bird-banding Council and the Academy.

The program, arranged by a committee under the chairmanship of Paul E. Downing, consisted of papers, color motion pictures, and an "Information, Please" session with Philip A. DuMont of the U. S. Fish and Wildlife Service as Master of Ceremonies and a panel of four experts representing both professional and amateur bird study organizations of local, midwest, and national scope. Frederick C. Lincoln of the U. S. Fish and Wildlife Service came from Washington to report unusual banding recoveries.

After a dinner at the Parkway Hotel, the conference reassembled at the Academy for a color movie-lecture by Edward Morris Brigham, Jr., Director of the Museum of Natural History, Battle Creek, Michigan.

Special Lecture by Harlow Shapley

Dr. Harlow Shapley, Director of the Harvard College Observatory and author of numerous publications on astronomy, gave a special lecture, sponsored by the Academy, on Friday evening, March 17. Under the title, *Astronomical Excerpts*, Dr. Shapley discussed, in a non-technical manner, episodes illustrative of the internationalism of astronomy at the present time and recent significant astronomical discoveries.

Again, restricted auditorium facilities forced a number of the audience to stand throughout the lecture.

Reprints of Karl Schmidt's essay, "What is a Naturalist," are still available: three parts, under one cover, twenty-five cents, postpaid.

New Members

At a meeting of the Board of Trustees and Scientific Governors, May 2, 1944, Dr. Harlow Shapley was elected a Fellow, Anna Pederson Kummer and Karl Patterson Schmidt were elected Honorary Life Members of the Academy.

Other new members recently elected are:

Life: Louis E. Laflin, III, and John E. Thompson, Chicago.

Sustaining: Walter A. Grau, Walter Huhn, Henry Thomas, all of Chicago; Charles F. Moravec, Cicero.

Associate: Henry Barbarrosa, Vincent Bellert, Mrs. Lillian Brown, I. J. Coldeven, Mrs. Ella Collins, Miss Eva Culdice, Edward F. Dibelka, Henry G. Dressel, Mrs. Clara Ellas, David Fain, George O. Fetty, Norbert C. Fortman, Stanley Gimbut, Mrs. G. B. Jennison, Miss Hazel Johnson, Miss Elsie Katterjohn, Henry Kenny, Fred Klein, Mrs. O. E. Kuhn, A. C. Lonert, Miss Vera Martin, James Nemetz, Jens E. Nielsen, Miss Lula Ryan, Miss Dorothea C. Scheer, Charles Schroeder, Jacob Steg, Fred A. Veit, and Louis Weintraub—all of Chicago; Dr. M. C. Carlson, Hugh W. McCulloch, and Harry O. Saunders—of Evanston; Miss Elsie Crundwell, East Chicago; Ind.; Miss Eveline M. Forst; Cicero; Norman Hallock, LaGrange; and A. S. R. Smith, Chesterton, Ind.

Recent Lectures

The lecture series sponsored by the Illinois Audubon Society has enjoyed a record-breaking attendance. Color motion pictures and lectures presented this spring were: March 1, Alfred M. Bailey, *Where the West Begins*; March 18, Olin S. Pettingill, Jr., *Wildlife in Action*; April 7, Alexander Sprunt, Jr., *A Naturalist Afield, Afloat and Aloft*; and May 4, Edna Maslowski, *Our Heritage in the Rockies*.

"The Microscope, Color Printing, and the Graphic Arts" was the title of a lecture by N. S. Amstutz, Research Engineer, on April 21 under the auspices of the State Microscopical Society of Illinois. Mr. Amstutz, a past-president of the microscopical society, is the inventor of the telegraphic transfer of pictures and has spent a lifetime of research in the field of graphic arts.

The distinguished Negro scientist Dr. Percy L. Julian, addressed the Cowles Botanical Society on April 18. His subject was "The Soya Bean and Certain Other Plants in a Nation at War." Dr. Julian has been for the past eight years Director of Research in the Soya Products Division of the Glidden Company, Chicago.

Staff Notes

Eliot C. Williams, Jr., assistant to the director, now with a chemical warfare unit in the Pacific region, has recently been promoted to First Lieutenant.

Donald C. Lowrie, former assistant curator of zoology, has received a commission as Lieutenant (junior grade) in the U. S. Naval Reserve and is now stationed at Pensacola, Florida.

Recent Visitors

Among museum visitors during recent weeks are Lawrence Vail Coleman, president of the American Association of Museums, Washington, D. C.; Alfred M. Bailey, director of the Colorado Museum of Natural History, Denver; Donald E. McHenry, National Park Service, Washington, D. C.; Dr. J. Willis Stovall, director of the University of Oklahoma, Museum of Natural History, Dr. Roy Hansberry and Dr. H. H. Schwardt of Cornell University, and A. C. Burrill, Director of the Missouri Resources Museum.

(Continued on page 24)

The Naturalist's Book Shelf

Man and the Biological World

By H. Speed Rogers, T. H. Hubbell and C. F. Byers

McGraw-Hill Book Co., Inc., New York, 1942. x, 607 pages, 180 figures, glossary, index. $3.50.

In the preface to this book the authors state that they were requested to organize a "survey" course in the biological sciences for underclassmen at the University of Florida. Their book is an outgrowth of their conviction that "a presentation of biological principles that stresses an appreciation of the data and reasoning on which such principles are based is practicable as a single-year course and provides a definite contribution to the student's knowledge of himself and of the world in which he lives."

It is the opinion of the reviewer that the authors have succeeded admirably in writing a book which illustrates their conviction. The initial chapter introduces the field of biology in general terms, stressing (a) the organism as an isolated individual, (b) the organism as a link in a sequence of generations, (c) the organism as an evolutionary product, and (d) the organism as a unit in the social-economic complex. Each of these four points of departure forms a section. The first section of the book, therefore, deals with the organism as an individual and discusses its morphology and physiology. This portion of the book comprises about forty per cent of the volume and places the emphasis upon the human body, with some fifty pages devoted to plant anatomy and physiology, and closes with a chapter on various patterns of individual organization.

The second section deals, in general, with embryology and genetics. The authors are to be complimented for a good, simple discussion of gametogenesis. The subject of genetics is surveyed in forty-six pages, with a chapter on human inheritance.

The third section, dealing with evolution, is very well written, covering a difficult subject in some 170 pages. Chapter 26, treating the evolutionary significance of taxonomy, ecology, and biogeography, is especially noteworthy.

The last section of the book stresses the ecological and economic relationships of organisms to their environment. The treatment of this fourth section is refreshing in its lack of cant but, unfortunately, is given only forty-one pages, and it is the opinion of the reviewer that this section should have been greatly expanded so that human ecology, in the broad meaning of the term, could have been adequately integrated. It will be seen that the book emphasizes vertebrate structure and functions. In a treatise devoted to the survey idea, such emphasis may be admissable; nevertheless, since in addition to himself, man's most dangerous enemies are bacteria and insects, it is regrettable that these two groups of organisms, at least, have not been placed in their proper relationship to the human animal.

Although geneticists and ecologists may feel that their fields of biology have been insufficiently covered (forty-six and forty-one pages respectively), on the whole the book is an important addition to the field of general biology at the freshman and sophomore college level.

The format is good, with adequate text illustrations. On the whole these latter are well chosen and some are exceptionally clarifying, as for example, Fig. 114 illustrating parallelism between phylogeny and ontogeny. There is a workable index. Three appendices enhance the value of the book, covering the classification of plants and animals, a bibliography by chapters, and a glossary.

Orlando Park.

The Garment of God: Influence of Nature in Human Experience.

By John C. Merriam

Charles Scribner's Sons, New York, 1943. xii, 162 pages. $2.00.

A scientist, writing a book for popular reading on a subject whose essence may not be defined, must needs avoid the absolute. Professor Merriam has done this without prejudice to his purpose which is to consider the "relation of nature to man."

The vaster aspects of nature as disclosed by scientific research, the author suggests, have widened the mystery of the origin of energy and the nature of matter. Hence we seem to have less definite information than we once thought we possessed concerning them. However, maugre the possibility that an extension of our knowledge may build new barriers for itself, one feels the hope expressed that it may be otherwise.

Appreciation of natural objects is enhanced by knowledge of their history and nature. But the unschooled and the scholar alike, may find much comfort in the thought that man's remaking of the physical features of nature leaves still untouched the beauty of sea and sky. The influence of the external world upon man is little diminished by present-day mechanical civilization. The planning of cooperative study of nature by the nations of the world is recommended.

Much is uttered by conservation advocates concerning the aesthetic and emotional values of wild life areas and their faunas, but men of practical affairs listen with a tolerance which, often, is suspect. In the opinion of this reviewer they would give more consideration to these so-called abstractions after a thoughtful reading of Professor Merriam's book.

The volume consists of chapters on the appreciation of nature, our views as broadened by science, types of natural inspirational features, primitive nature's special influence, nature in day to day living, nature as a common interest among peoples, and nature and the religion of progress.

There is charming description in the chapter on natural inspirational features, particularly that part which treats of the Grand Canyon. Throughout the work passages of great poetry are fittingly quoted. Hope for humanity through nature is the philosophic keynote.

The book, too, is inspirational.

Edward R. Ford.

Nature in Recreation

By Marguerite Ickis

A. S. Barnes and Company, New York, 1938, ix, 114 pages, numerous line drawings, bibliography. Cardboard cover, $1.00.

Though this excellent handbook was published some five years ago, its current timeliness for readers of *The Chicago Naturalist* warrants calling it to their attention as a means of enriching their summer nature activities.

Miss Ickis' purpose in writing *Nature in Recreation* was to "give a knowledge and enjoyment of *living* things and the *way* they live, without destroying them." The book is designed to suggest to camp and recreation leaders methods of arousing interest in and awareness of the animal and plant life in the world about us —to serve as a "means of introducing Nature to boys and girls in a friendly, intimate fashion."

Activities utilizing natural objects are described under the headings: Nature in Camping, in Handicraft, in Games, in Dramatics, in Music, in Dancing, and in Aquatics. Criteria for evaluating and setting up standards for nature programs are listed according to their applicability to nature facilities, leader, program, and activities. An excellent classified and annotated bibliography of books and magazines suitable for reference use in a camp library or trailside museum should be particularly appreciated by users of this eminently practical handbook.

Harriet M. Smith.

The Hikers Handbook

A Practical Manual for Those who make a Hobby of Walking

By Douglas Leechman

W. W. Norton and Co., Inc., New York, 1944. 213 pages, 39 figures (line drawings and diagrams by the author), index. $2.50.

Mr. Leechman's approach is always practical, his recommendations proven by personal trial. His most recent handbook is designed to help those who like to walk, to get the most enjoyment from the out-of-doors, unimpeded by either superfluous or inadequate equipment for each specific outing plan—yet prepared for unanticipated contingencies.

Indeed, the reader, if he has not already learned from unhappy experience, soon realizes that *planning* is the keynote of a successful trip and that this is particularly true of an outing on foot, whether of a day's or a month's duration.

Remarking that "Only the greenhorn tries to see how tough he can make things, and still 'take it'," Mr. Leechman discusses with humor and common sense the equipment, woodcraft procedures, and diplomatic relations of the trail under such chapter headings as: What to Wear, Your Pack and How to Arrange It, Sleeping Out of Doors, Lost in the Woods, Your Health and Other Trifles, Woodcraft and Trail Lore, In the City, Have an Objective, Hiking Clubs and Associations, and The Hiker and the Law. Line drawings and diagrams by the author make completely clear the carrying out of his written instructions and the reasons they are effective. Mr. Leechman does not dictate; he talks various situations over with his reader, warning that he "remember always that one should not follow advice, however excellent, if it is not applicable to the case in hand."

One of the greatest values of this handbook lies in the manner in which its author ties in the many hobbies related to walking. By following its suggestions, the reader—whether he walks primarily for exercise and recreation or as a necessary activity incidental to the pursuit of some other hobby or professional interest—will find his appreciation and understanding of his surroundings enriched, his capacity for taking in their significance enlarged by being made freer from the distractions of physical discomforts and mental anxieties.

Harriet M. Smith.

Edible Wild Plants of Eastern North America

By Merritt Lyndon Fernald and Alfred Charles Kinsey

Idlewild Press, Cornwall-on-Hudson, N. Y., 1943. xiv + 452 pages, 129 text figures, 25 plates, index. $3.00.

This work, dealing with the edible wild plants of eastern North America, is well timed, as we enter the critical food situation brought on by the total involvement of the world in war. With a number of the world's most populous countries facing imminent starvation, means of supplementing our food supplies from the bounties of nature should be more than welcome. Perhaps it was designed to stimulate an adventurous people to new tastes, and to new appetites, more conformable to the primitive life of our forebears. It should perform these services admirably. Many of our wild plants flourish in abundance, and are delicious when properly prepared, but have been neglected only because they are not cultivated and purchasable on the markets. Others are dangerous, and must not be confused with the harmless species.

How delightful it is to turn an outing into an opportunity to enjoy the taste of wild foods. Wild plants often possess a tang as characteristic as that of wild game. Those who have never eaten pokeweed greens or purslane salad should try them or experiment with them until the technique of making them as palatable as any cultivated pot herbs has been acquired.

The first chapter of the book presents the plants according to the uses

which may be made of them. Some plants are useful in purées or soups, some provide starch reserves to be cooked, some provide greens, salads, relishes, pickling material, condiments, drinks, rennets, confections, preserves, dried fruits, oils and butters, chewing gums, and emergency foods. The second chapter discusses in detail the main poisonous plants likely to be confused with the harmless and useful ones. Strict attention should be given to this chapter by the novice until he is sure of his powers of discrimination.

The third chapter launches into a detailed listing of the plants in ascending order, edible and non-edible, from ferns to the Compositae. The entire plant kingdom is surveyed in a manner to meet the approval of those to whom botany is a glorified taxonomy. It falls in a region where taxonomy and gastronomy may at least meet, and compliment or supplement each the other. The last chapter of text deals with the mushrooms, seaweeds, and lichens. In this region one who does not *know* his plants should be cautious indeed. Some edible fungi are easily recognized, and these may be used while the beginner is learning to be absolutely sure about the rest. A safe rule to follow is not to use a single mushroom which you do not know to be harmless. The connoisseur among these forms has a sure source of delightful taste experiences.

A brief chapter of bibliographic references follows the text, and there is an adequate index. The work as a whole is a valuable addition to the home library of the botanically inclined. One need have no compunctions about gathering the plants listed from their native haunts. Most of them are not protected as are wild flowers; and no genuine lover of nature would ever rob the earth of its rare denizens for culinary purposes. Weeds are amply provided with means of survival against all the herb gatherers of the world.

Charles A. Shull.

Health and Hygiene

By Lloyd Ackerman

The Jaques Cattell Press, Lancaster, Penn., 1943, xii, 895 pages, 59 figures. $5.00.

This popular work on preventive medicine by a biologist, not a physician, gives a fairly accurate picture of our present knowledge of this most important topic. Its presentation of the importance of nutrition, immunization and general hygiene to the maintenance of high standards of health is especially valuable. A careful study of this book by all parents and teachers who are interested in preventing many of the disabilities because of which so many of our young men have been classified in 4-F, would do more than anything else could, to prevent a similiar situation from arising twenty-five years from now.

N. S. Davis, M.D.

Taxidermy

By Leon L. Pray

The Macmillan Company, New York, 1943, viii, 89 pages, 42 illustrations by the author, index. $1.49.

Mr. Pray's new handbook on taxidermy is so concisely written, logically organized, and graphically illustrated that with its aid an outright beginner should be able to turn out a more than passable mounted specimen —not just a "stuffed skin"—on his first attempt. Indeed, excellent though the text is, and eminently practical in its suggestions, he would probably have little trouble in working out the procedures, step by step, by following the author's diagrammatic drawings alone. Had this reviewer had such a manual in his boyhood days, while struggling to learn the art of taxidermy by trial and error, the going would have been much smoother.

In the first chapter are listed tools and materials, broken down into an amateur's minimum kit of ten implements and twelve materials, plus 41 other useful tools and 26 items of ex-

pendable material desirable for equipping the laboratory of the professional taxidermist. The last chapter recommends tested, fool-proof methods of preparing mixtures, solutions and pastes—usually advising the use of commercial products rather than brewing up complicated messes in the basement or laboratory. The six chapters which comprise the main body of the book discuss fully the recommended method of mounting a deer head, a fish, bird, wildcat, small mammal, tortoise, horned toad, and crayfish.

The author became a professional taxidermist in 1902, when he joined the preparations staff of the Field Columbian Museum (now the Chicago Museum of Natural History), working under the guidance of Carl Akeley, the outstanding museum taxidermist of that period. One of Mr. Pray's earliest and most important contributions to taxidermic methods arose as a personal solution to the unattractive alternatives of abandoning taxidermy as a career or of being killed by it, for during his first years in this field he was literally up to his elbows in arsenic and had begun to be seriously affected by this poison, then regarded as an essential insecticide in taxidermy. Experimentation with borax proved it not only an effective substitute as an insect repellant but also an excellent curative for skins. Borax has now almost supplanted arsenic in taxidermy, and Mr. Pray has in his files letters from amateur and professional taxidermists all over the country, expressing appreciation for his elimination of this occupational hazard.

Mr. Pray has never been jealous of the "secrets of his profession," and to the generous sharing of improvements in technique worked out through his ingenuity and skill may be credited much of the progress noticeable in the quality of taxidermy over the country in the past forty years. Not only will his new manual help the amateur sportsman-taxidermist who wants to mount his own trophies, but even the professional will find on ever page practical information of aid in perfecting his work.

T. I. Wright.

Note

All books reviewed in *The Chicago Naturalist* are placed in the Reading Room at the Academy and are readily available to all who may care to read them.

Museum Activities (*continued from page 19*)

After his lecture, on the evening of March 17, Dr. Harlow Shapley, Director of Harvard College Observatory, Miss Maude Bennot, Acting Director of the Adler Planetarium, and Dr. Oliver Justin Lee, Director of Dearborn Observatory of Northwestern University, inspected the Atwood Celestial Sphere. The Sphere, in use in the Academy Museum since 1913, is recognized as a forerunner of the modern planetarium.

1944 Cowles Award

The Cowles Botanical Society again offers to High School students an award of $25 "for excellence in original work in Botany, either observational or experimental." Results are to be presented in the form of scientific papers and reports. All manuscripts must be in the hands of the Committee not later than November 1, 1944.

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